

PA IT COOPERATION TREAT

PCT

From the INTERNATIONAL BUREAU

NOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

To:

UDL THAMES VALLEY
1 Richfield Place
Richfield Avenue
Reading RG1 8EQ
ROYAUME-UNI

Date of mailing (day/month/year) 28 February 2001 (28.02.01)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference P92746WO	
International application No. PCT/GB00/02265	International filing date (day/month/year) 09 June 2000 (09.06.00)

1. The following indications appeared on record concerning:		
<input type="checkbox"/> the applicant	<input type="checkbox"/> the inventor	<input checked="" type="checkbox"/> the agent
<input type="checkbox"/> the common representative		
Name and Address URQUHART-DYKES & LORD 1 Richfield Place Richfield Avenue Reading RG1 8EQ United Kingdom	State of Nationality	State of Residence
	Telephone No. 44 118 950 9937	
	Facsimile No. 44 118 958 4436	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
<input type="checkbox"/> the person	<input checked="" type="checkbox"/> the name	<input type="checkbox"/> the address
<input type="checkbox"/> the nationality		
<input type="checkbox"/> the residence		
Name and Address UDL THAMES VALLEY 1 Richfield Place Richfield Avenue Reading RG1 8EQ United Kingdom	State of Nationality	State of Residence
	Telephone No. 44 118 950 9937	
	Facsimile No. 44 118 958 4436	
	Teleprinter No.	
3. Further observations, if necessary:		
4. A copy of this notification has been sent to:		
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned	
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned	
<input checked="" type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:	

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Eugénia Santos
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE
 in its capacity as elected Office

Date of mailing (day/month/year) 22 February 2001 (22.02.01)	
International application No. PCT/GB00/02265	Applicant's or agent's file reference P92746WO
International filing date (day/month/year) 09 June 2000 (09.06.00)	Priority date (day/month/year) 12 June 1999 (12.06.99)
Applicant LEGETT, Nigel, Derek et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
 11 January 2001 (11.01.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer S. Mafla Telephone No.: (41-22) 338.83.38
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REC'D 08 OCT 2001

WIPO

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference ...	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB00/02265	International filing date (day/month/year) 09/06/2000	Priority date (day/month/year) 12/06/1999
International Patent Classification (IPC) or national classification and IPC H03K17/78		
Applicant SENSOR HIGHWAY LTD		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 11/01/2001	Date of completion of this report 04.10.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Moll, P Telephone No. +49 89 2399 2197 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/02265

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-4 as originally filed

Claims, No.:

1-10 as received on 23/08/2001 with letter of 15/08/2001

Drawings, sheets:

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/02265

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	2-6,8,9
	No:	Claims	1,7,10
Inventive step (IS)	Yes:	Claims	2
	No:	Claims	1,3-10
Industrial applicability (IA)	Yes:	Claims	1-10
	No:	Claims	

2. Citations and explanations
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB00/02265

R It m V

1). Reference is made to the following documents:

D(1): US-A-4 375 106

D(2): US-A-4 494 241

D(3): US-A-3 866 177

2). Subject-matter of present claim 1 is anticipated by the prior art known from document D(1), cf. in D(1)

- actuation system (Figures 1, 2) for a plurality of electrically actuated devices (column 7, lines 13-16).
- pulsed light source (Figure 1: D1) of variable pulse frequency (column 4, lines 44-47).
- plurality of actuation gateways (Figures 1, 2 in conjunction with column 7, lines 13-16) each adapted to supply an actuation voltage (Figure 2: voltage at "c", see also Figure 3c) above a threshold value to an associated device (Figure 2: voltage level discriminator) when illuminated by light pulsed at a trigger frequency for that device (Figure 7 in conjunction with Figure 2, see also column 7, lines 4-13).
- photovoltaic converter means (Figure 9: infrared receiving diode D2 followed by pre-amplifier V) for converting pulsed incident light to a pulsed electric current (that current controlling the base-emitter junction of transistor T3 at node "a") of corresponding frequency.
- frequency-sensitive transformer means (Figure 9: T3, R7, C3, R8, C4) for transforming the voltage of the pulsed output signal ("a") of the photovoltaic converter means (D2, V) to a higher voltage (at "c") above (cf. voltage dividers R17, R18; R19, R20) the threshold value (base-emitter threshold voltage) for the associated device (T5, T6, FF, TR, L) when the current frequency is at a trigger frequency (column 7, lines 4-16); note that, since the language "the voltage of the pulsed current" found in claim 1, line 10 is obscure, this phrase is read as "the voltage of the pulsed output signal".

The subject-matter of claim 1 is therefore not new within the meaning of Article

33(2) PCT.

The same applies to independent method claim 10 *mutatis mutandis*.

- 3). The additional features found in the dependent claims 7 and 8 are already known from the cited prior art, cf. as to
- claim 7: D(1), column 7, lines 4-16; note that the language "gateway" does not imply any particular realisation of the apparatus in question
 - claim 8: D(2), Figure 1, optical couplers (c1, c2,...), optical fibres (f1, f2,...); although not being expressly mentioned in D(1), the application of optical fibres as "optical pathway means" is found to constitute an obvious design option,

whereas the embodiments of dependent claims 3-6 and 9 refer to mere dimensionings which are considered to come within the realm of normal design work undertaken by the skilled practitioner.

- 4). According to the dependent claim 2 the transformer means are embodied by a ferroelectric transformer the resonant frequency of which corresponds to the desired trigger frequency. Although the application of transformers that perform, in conjunction with capacitors, as frequency-selective resonant circuits is known per se in the art [cf. D(3), Figure 4a, resonant circuits 30, 31], there is nothing to suggest the claimed use of a ferroelectric transformer.

ENT COOPERATION TREATY

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INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P92746W0	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/GB 00/ 02265	International filing date (day/month/year) 09/06/2000	(Earliest) Priority Date (day/month/year) 12/06/1999
Applicant SENSOR HIGHWAY LTD		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :
- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of Invention is lacking** (see Box II).

4. With regard to the title,

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

- ☒ the text is approved as submitted by the applicant.
- ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

- ☐ as suggested by the applicant.
- ☒ because the applicant failed to suggest a figure.
- ☐ because this figure better characterizes the invention.

1 _____

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/02265

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 H03K17/78 G08C23/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H03K G08C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, IBM-TDB, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 375 106 A (VOLL WALTER) 22 February 1983 (1983-02-22) column 2, line 53-56 column 3, line 41 -column 5, line 44 column 7, line 56,57; figures 1,2	1-4, 7-9, 12
Y	---	10
Y	US 4 494 241 A (MAYOUX JEAN-JACQUES) 15 January 1985 (1985-01-15) column 3, line 11-51; figure 1	10
X	US 3 866 177 A (KAWAMATA YUKIO ET AL) 11 February 1975 (1975-02-11) column 3, line 66 -column 5, line 34; figures 3A,4A --- -/--	1-4, 7, 8, 12

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

13 September 2000

Date of mailing of the international search report

21/09/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+31-70) 340-3016

Authorized officer

Moll, P

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 00/02265

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 710 122 A (BURCHER E ET AL) 9 January 1973 (1973-01-09) figures 1,3 ----	1,12
X	DE 26 19 423 A (CREATIV PATENTANSTALT) 24 November 1977 (1977-11-24) figures 1,2 ----	1,12
A	US 4 227 075 A (HOLLAND JOHN M) 7 October 1980 (1980-10-07) figures 1,2 -----	1,12

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 00/02265

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4375106	A	22-02-1983	DE 2951974 A	02-07-1981
			DE 2951975 A	02-07-1981
			DE 2951976 A	03-09-1981
			AT 9517 T	15-10-1984
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			DE 3071535 D	15-05-1986
			EP 0031874 A	15-07-1981
			EP 0031404 A	08-07-1981
			ES 498057 D	16-11-1981
			ES 8200806 A	01-02-1982
			JP 56098993 A	08-08-1981
			DE 3069224 D	25-10-1984
US 4494241	A	15-01-1985	FR 2473823 A	17-07-1981
			DE 3100929 A	19-11-1981
US 3866177	A	11-02-1975	JP 946546 C	30-03-1979
			JP 49039354 A	12-04-1974
			JP 53026787 B	04-08-1978
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			JP 49037079 A	06-04-1974
			AU 469209 B	05-02-1976
			AU 5912773 A	13-02-1975
			CA 1000363 A	23-11-1976
			DE 2340593 A	21-02-1974
			GB 1439167 A	09-06-1976
			NL 7311083 A, B,	14-02-1974
			PH 10076 A	05-08-1976
			ZA 7305507 A	25-09-1974
US 3710122	A	09-01-1973	NONE	
DE 2619423	A	24-11-1977	CH 615772 A	15-02-1980
			FR 2350756 A	02-12-1977
US 4227075	A	07-10-1980	NONE	

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 December 2000 (21.12.2000)

PCT

(10) International Publication Number
WO 00/77932 A3

(51) International Patent Classification⁷: **H03K 17/78**,
G08C 23/06

11 Priors Dean Road, Harestock, Winchester, Hampshire
SO22 6JT (GB).

(21) International Application Number: PCT/GB00/02265

(74) Agent: **URQUHART-DYKES & LORD**; 1 Richfield
Place, Richfield Avenue, Reading RG1 8EQ (GB).

(22) International Filing Date: 9 June 2000 (09.06.2000)

(81) Designated States (*national*): AU, BR, CA, GB, NO, RU,
US.

(25) Filing Language: English

(26) Publication Language: English

(84) Designated States (*regional*): Eurasian patent (AM, AZ,
BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE,
CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC,
NL, PT, SE).

(30) Priority Data:
9913600.4 12 June 1999 (12.06.1999) GB

(71) Applicant (*for all designated States except US*): **SENSOR
HIGHWAY LTD.** [GB/GB]; Roman House, North Way,
Walworth Industrial Estate, Andover, Hampshire SP10
5QD (GB).

Published:
— With international search report.

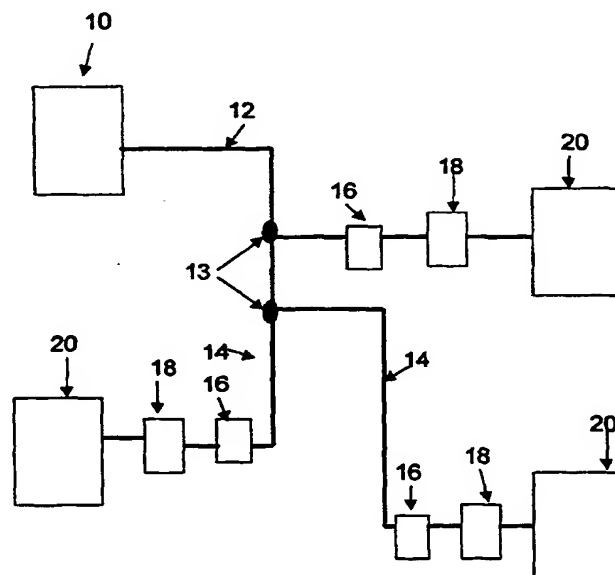
(88) Date of publication of the international search report:
8 February 2001

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **LEGGETT, Nigel,
Derek** [GB/GB]; Field Cottage, Wonston, Winchester,
Hampshire SO21 3LS (GB). **McINNES, James** [GB/GB];

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: OPTO-ELECTRICAL ACTUATION SYSTEM AND METHOD



(57) Abstract: A selective optical actuation system for a plurality of electrical devices (20) comprises a variable pulse frequency pulsed light source (10) and an optical fibre network (12, 13, 14) distributing the light pulses to an actuation gateway for each device, comprising a photovoltaic converter (16) whose correspondingly pulsed electrical output is applied to a ferroelectric transformer (18). Only if the pulse frequency is within the resonant band for a given transformer will the voltage be raised above a threshold value required to actuate that device. Choice of light pulse frequency thereby determines the device(s) to be actuated.

WO 00/77932 A3